

WHAT IS CLAIMED IS:

1. A probe driving mechanism for displacement measuring apparatuses for use in measuring the sizes of a workpiece without causing the workpiece to be deformed even when a probe is brought into contact therewith, comprising:

a motor for driving the probe,
a scale for detecting the displacement of the probe,
a workpiece sensor for detecting the engagement of the probe with the workpiece, and
a device for controlling the power applied to the motor, in accordance with an output from the scale when the output from the scale varies in accordance with the power applied to the motor, giving a judgment that the probe contacts the workpiece when the variation of an output from the scale becomes small even though the same level of power continues to be applied to the motor, and setting the power applied to the motor smaller; and controlling the power applied to the motor, in accordance with an output, the speed variation of which is larger, out of an output from the scale and that from the workpiece sensor when the output from the work sensor varies.

2. A probe driving mechanism for displacement measuring apparatuses according to Claim 1, wherein the probe is supported on a parallel link mechanism so that the probe can be moved freely in the vertical direction, and an output from the workpiece sensor varies when the probe contacts the workpiece to cause a link member constituting the parallel link mechanism to attain a predetermined angle owing to the engagement of the probe with the workpiece.

3. A probe driving mechanism for displacement measuring apparatuses according to Claim 2, wherein, when an output from the workpiece sensor varies and attains a predetermined level, an output from the scale is held and determined as a measurement value of the workpiece.

4. A probe driving mechanism for displacement measuring apparatuses according to Claim 3, wherein, when an output from the scale is held and determined as a measurement value of the workpiece with a judgment that the measurement operation is completed given, the probe is retracted upward by a predetermined quantity, and a measurement operation in which the deformation of the workpiece is prevented is conducted.

5. A probe driving mechanism for displacement measuring apparatuses according to Claim 3, wherein a position memory for storing vertical positions of the probe therein is further provided, the measurement of the workpiece being conducted by controlling

the movement of the probe so that the probe is moved at a high speed up to the height stored in the position memory and then at a low speed from the mentioned height so as to bring the probe into contact with a surface of the workpiece.

6. A probe driving mechanism for displacement measuring apparatuses according to Claim 1, wherein the workpiece sensor is made of a photocoupler, and detects in a non-contact state the attainment of a predetermined angle by the link member constituting the parallel link mechanism to cause an output from the photocoupler to vary.

7. A probe driving mechanism for displacement measuring apparatuses according to Claim 1, wherein the scale is a non-contact type photoelectric encoder.